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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/654,967

09/05/2003

Masafumi Sakaguchi

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03/08/2005

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EXAMINER

SEVER, ANDREW T

ART UNIT

PAPER NUMBER

2851

DATE MAILED: 03/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/654,967

**Applicant(s)**

SAKAGUCHI, MASAFUMI

**Examiner**

Andrew T. Sever

**Art Unit**

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11/24/2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-15 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Allowable Subject Matter***

1. The indicated allowability of claim 13 is withdrawn in view of the newly discovered reference(s) to Wilkinson (2003/0156329) in view of Hoopman (5,439,621), Chambers (5,626,410), Bourdelais et al. (6,846,098) and further in view of Hannon et al. (US 5,781,342). Rejections based on the newly cited reference(s) follow.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1 and 4 are rejected under 35 U.S.C. 102(e) as being anticipated by Wilkinson (US 2003/0156329.)

Wilkinson teaches in figures 7 and 8 a transmissive screen applied to a rear projector, the transmissive screen comprising:

A light-guide plate having substantially cylindrical light-guide spaces (166) arranged in a flat substrate (164); and

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A light-exit-angle distribution uniformizing device (tip of light-guide where 162 immediately points) to make the angular distribution of the light exiting correspondingly from the substantially cylindrical light-guide spaces of the light-guide plate uniform over the transmissive screen (see the arrows in figure 8 indicating the light angle distribution and compare to figure 6 which lacks the curved light-exit-angle distribution uniformizing device), the light-exit-angle distribution uniformizing device being disposed at the light-exiting face side of the light-guide plate.

*With regards to applicant's claim 4:*

Parts 164, 60, 156, 152 are specified to be opaque (see paragraph 53.)

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkinson as applied to claims 1 and 4 above, and further in view of Reidinger (US 4,743,090.)

As described in more detail above, Wilkinson teaches a transmissive screen having among other things light-guide spaces. Wilkins does not specifically teach the dimensions of either the light-guides or the surrounding matrix. Reidinger teaches a

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screen which uses fiber optics (a type of light-guide) in figure 3. Reidinger teaches in column 2 lines 22-39, the light guide spaces have a diameter of 100 micro meters or more (which includes applicant's claimed range) and a length of 1 to 5 mm as is claimed in applicant's claim 3 (see column 2 lines 17-21.) Reidinger teaches in column 2 that the fibers are bound in a frame, which as shown in figure 1 is opaque (light guide is surrounded by and opaque region.) Reidinger teaches in column 1 lines 30-40 that this construction is superior over other prior art constructions of projection screens, in that it allows for better rearview projection, and improved light reflection, as well as easier cleaning. Given the many advantages taught by Reidinger's screen which teaches the basic construction of a cylindrical light-guide based transmissive screen such as taught by Wilkinson, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the construction taught by Reidinger in the design and construction of the transmissive screen taught by Wilkinson.

6. Claims 5, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkinson (US 2003/0156329) as applied to claims 1 and 4 above, and further in view of Hoopman (US 5,439,621.)

As described in more detail above Wilkinson teaches a transmissive screen with a light-exit-angle distribution uniformizing device, however Wilkinson does not specifically teach that uniformizing device comprising of a microlens array specifically where the microlenses in the central region have a radii of curvature smaller than at least the radii of curvature of the microlenses in a peripheral region of the transmissive screen. Hoopman

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teaches a lenticular lens array having the radius of curvature of the lens in the center being smaller than that of the lens in a peripheral region (see column 4 lines 37-60.) Hoopman teaches in column 1 lines 53-66 that the use of such a microlens array allows for a brighter display. Hoopman teaches in column 1 lines 12-30 that among other things microlenses are used as focusing means for optical fibers and liquid crystal display devices such as Wilkinson, accordingly given the advantages of Hoopman's microlens array over other prior art microlens arrays (it making a brighter display), it would have been obvious to one of ordinary skill in the art at the time the invention was made to include Hoopman's microlens array in Wilkinson's light-exit-angle distribution uniformizing device.

*With regards to applicant's claim 7:*

Both Hoopman and Wilkinson teach placing the light-exit-angle distribution-uniformizing device on the light-exiting face of the light-guide plate. (See figure 3 of Hoopman.)

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkinson in view of Hoopman as applied to claims 5 and 7 above, and further in view of Chambers et al. (US 5,626,410.)

As described in more detail above, Wilkinson in view of Hoopman teaches among other things a transmissive screen including a microlens array serving as light-exit-angle distribution uniformizing device, however Wilkinson in view of Hoopman does not teach

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that a diffusing layer is disposed between the microlens array and the light-guide plate.

Chambers teaches a transmissive screen (38) in figure 5, which includes a diffusing layer (42). Chambers teaches in column 2 lines 36-41 that the (output) diffusing layer allows for more uniform brightness over a larger field-of view, by placing such a layer between the microlenses and light-guide plate a better image can be produced, accordingly it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a light diffusing layer between the light-exiting face of the light-guide plate and the microlens array of Wilkinson in view of Hoopman as taught by Chambers.

8. Claims 9-12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkinson in view of Hoopman and Chambers as applied to claims 8 and 11 above, and further in view of Bourdelais et al. (US 6,846,098.)

As described in more detail above Wilkinson in view of Hoopman and Chambers teaches a transmissive screen, which among other things includes a light diffusing layer, however they do not specifically teach a variable haze value across the screen. Bourdelais teaches in column 1 lines 59 through column 2 line 5 that in transmission screens it is desirable to have a diffuser with variable haze as this allows for a higher overall transmission value compared to uniform diffusion films. Accordingly it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a diffusing layer having

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variable haze values as taught by Bourdelais in the screen of Wilkinson in view of Hoopman and Chambers.

*With regards to applicant's claim 10:*

The light would inherently be diffused substantially at the surface.

*With regard to applicant's claim 11:*

As clearly seen in Chambers the diffusing layer is disposed on the light-exiting face of the light-guide plate.

*With regards to applicant's claim 12:*

See table 1 column 29 of Bourdelais, which teaches Haze values within applicant's claim range.

*With regards to applicant's claim 14:*

See figures 1 and 2 of Bourdelais, which make up the diffuser.

9. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkinson as applied to claims 1 and 4 above, and further in view of Haven (US 6,637,888.)

As described in more detail above, Wilkinson teaches a rear projection screen, however it does not specifically teach the construction of various forms of the rear projection screen, such as that taught by Haven in figure 1A. Rear projection screen and associated



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projector generally comprise of an optical projection unit (16), a light guide mirror (20 and 22), and a transmissive screen. Given the advantages of the transmissive screen of Wilkinson, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the screen of Wilkinson in the rear projection system of Haven.

10. Claim 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkinson in view of Hoopman, Chambers, Bourdelais as applied to claims 9-12 and 14 above, and further in view of Hannon et al. (US 5,781,342.)

As described in more detail above Wilkinson in view of Hoopman, Chambers, and Bourdelais teaches a transmissive screen, which among other things includes a diffusing layer, however they do not teach what its gloss value is. Hannon teaches in column 2 lines 7-12 that in rear projection screens, it is desirable to have a low reflectivity (gloss value) and a high diffusivity. Hannon teaches in table 1 in column 14 several substance (ePTFE) that meet this requirement (see the surrounding text for explanation.) Given the teaching that it is desirable to in rear projection screens to have low gloss values such as those that meet the limitations of applicant's claim 13 and given the teaching of several substance taught by Hannon it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a transmissive screen having a diffusing layer having a gloss value within the range of 5% to 40%.

***Allowable Subject Matter***

11. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter: See the reasons for indication of allowable subject matter in the non-final rejection mailed on 9/22/2004 substituting Wilkinson as appropriate.

***Response to Arguments***

13. Applicant's arguments with respect to claims 1-5 and 7-15 have been considered but are moot in view of the new ground(s) of rejection.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Sever whose telephone number is 571-272-2128. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AS



**Alan A. Mathews**  
**Primary Examiner**